REMARKS

In the Office Action mailed April 6, 2007, the Examiner rejected Claims 20 and 21 as failing to comply with the written description requirement of 35 U.S.C. §112, and rejected Claims 3, 4, 6 through 8, 15, 16, and 18 through 21 were rejected by the Examiner under 35 U.S.C §103(a) as being anticipated by GB-2316986 (GB'986) in view of US Patent 6,199,378 to Aardema et al. (US '378). Claim 22 was removed from consideration as being directed to a non-elected invention.

Rejections under 35 U.S.C §102(b)

Recap of argument in previous amendment:

As explained in the previous Amendment, submitted on December 20, 2006, the first paragraph of the second page of GB '986 states:

> "Besides its function of adjusting the brake pressure in the wheel brake cylinders, the inlet valve has a safety function: if, as a result of a fault in the electronic control unit or in a pump pressure sensor connected to the discharge end of the hydraulic pump, the brake fluid pressure exceeds an admissible maximum pressure, the inlet valve, *which closes under the action of a spring*, opens so that brake fluid flows from the discharge end of the hydraulic pump, through the inlet valve and the outlet valve which is open in its basic setting, back to the brake fluid storage tank so that the maximum pressure in the vehicle brake system is limited. During said process, no brake pressure is built up in the wheel brake cylinder." (emphasis added)

Similarly GB'986 states:

> "Besides their function of adjusting the wheel brake cylinder pressure, the inlet valves 22, which like the outlet valves 24 are designed as differential-pressure or pressure relief valves . . . .When one of the inlet valves 22 opens as a result of attainment of the admissible

> maximum pressure, the outlet valve 24 is opened through energization in order to prevent brake pressure from building up in the wheel brake cylinder 20, i.e. in order not to brake the respective vehicle wheel. The opening of the outlet valve 24 is effected automatically in that the brake pressure sensor 32 detects a pressure build-up in the wheel brake cylinder 20 but the braking force setpoint generator 36 does not call for a build-up of braking force." GB'986 pages 5-6 (emphasis added)

It is clear that no anticipative opening of the inlet valve occurs. Instead, no action is taken until the pressure *reaches or exceeds* an admissible maximum pressure, at which point *spring pressure is overcome* and the inlet valve opens independently of any electronic control signal. The outlet valve is electrically opened only in response to a sensed rise in pressure at the load (brake), or, in another embodiment, always energized open whenever no brake demand signal exists, regardless of the operation of the pump. (GB'986 page 6).

Thus, the pressure relief operation of the inlet valves of GB'986 is purely reactive, and not electronically controlled. Thus, no anticipative operation, as recited in the independent Claims 3 and 19, is taught or suggested by GB'986.

Additional new argument in response to most recent Office Action:

The Examiner found the above argument to be persuasive. The Examiner has now found a new ground of rejection, citing GB'986 in view of US '378. Newly cited US '378, according to the Examiner, teaches "the use of control scheme used in fluid system that remedies an overpressure situation by anticipating an overpressure condition then by sending an electric signal to the appropriate control valve to initiate movement of the control valve towards an open position prior to the overpressure occurring" (citing col. 3, lines 40-55 of US'378). The Examiner argues that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the manner of relieving an over pressure condition of GB'986 to have

included a remedy, as taught by US'378, in order to provide a means of preventing an overpressure condition from occurring .

Applicants respectfully note, however, that US'378 indicates in Col. 3, Line 39 through 45 (just prior to the section cited by the Examiner):

> "A control scheme, such as that set forth in U.S. Pat. No. 5,813,226, is provided in the electronic controller 52 and operative to sense and predict pressure overshoot or over-pressure in portions of the fluid system 10 and function to move the appropriate valve of the electrically actuated control valve mechanism 28 to relieve the over-pressure in the fluid system 10."

In reviewing the control scheme set forth in U.S. Pat. No. 5,813,226 (US'226) (which is being cited in the Information Disclosure Statement Applicants are submitting herewith), Applicants note that the control scheme of US'226, and thus of US'378, measures rate of pressure rise to predict pressure exceeding a maximum pressure. US'226 does NOT determine the reason for the pressure rise, and indeed notes that the pressure could rise for any number of reasons (US'226, Col. 2, Lines 56-60 indicates that:"The pressure could be generated by the pump, the magnitude of the load, changes in the velocity of the implement or cylinder of any other parameter in the system that is capable of generating a pressure on the fluid at that location.").

In the section entitled "Disclosure of the Invention" (Col. 1, line 66 through Col. 2, line 29), US'226 recites:

> "The method includes the steps of sensing the pressure level of the fluid at a predetermined location in the hydraulic system, establishing a predicted pressure level based on the relationship of at least the sensed pressure level and the magnitude of the differential pressure determined over a predetermined time period, comparing the predicted pressure level to a predetermined pressure level that is representative of the pressure level needed to move the electrically

actuated control valve mechanism to a position that is ready to initiate communication of the pressurized fluid with the reservoir, comparing an input command signal with a command signal needed to initiate movement of the electrically actuated control valve mechanism to the position that it is ready to initiate communication of the pressurized fluid with the reservoir, directing the input command signal to the electrically actuated control valve mechanism for movement thereof if the input command signal is greater than the command signal needed to initiate opening of the electrically actuated control valve mechanism, comparing the predicted pressure level to a predetermined percentage of the predetermined pressure level necessary to move the electrically actuated control valve mechanism to a position that is ready to initiate communication of the pressurized fluid to the reservoir, and moving the electrically actuated control valve mechanism to a position that is representative of the result of the step of comparing the predicted pressure level to a predetermined percentage of the predetermined pressure level necessary to move the electrically actuated control valve mechanism to a position that is ready to initiate communication of the pressurized fluid to the reservoir."

Later, in the section entitled "Best Mode For Carrying Out The Invention", in Col. 7, Line 22 through 36, US'226 recites:

"In order to determine that the desired maximum pressure level is going to be exceeded and to react to the maximum pressure level being exceeded before it actually happens, the control scheme first establishes a predicted pressure level P_p based on the sensed pressure, the differential pressure dp and the input command signal X_{cmd}. The processor quickly processes the predicted pressure level P_p and generates a final command output signal X_{out} that completes one loop. The final

command output signal X_{out} positions the appropriate electrically controlled proportional valve 19/44/46 accordingly. In the next and subsequent loops, the electronic controller 20 continues to provide a predicted pressure level P_p based on the sensed pressure, the differential pressure and the input command signal X_{cmd} and generates a final command output signal X_{out}."

Thus, it is clear that the method used in US '226 and US'378 does not reference the operating state of the system motor/pump unit, as required by Applicant's invention (the method of Claim 3, in pertinent part, includes "...determining that the pump is running..."; Claim 19 recites, in pertinent part, "...wherein the input to the controller indicating operation of at least one of the motor and the pump is an input to an anticipative function..."). There is no suggestion in US'226 or '378 to look at the operation of the motor/pump unit to determine if it is running. Accordingly, since the method recited in Applicant's invention is not disclosed or suggested by the cited references, and the Examiner is respectfully requested to withdraw the rejections under 35 U.S.C. §102(b).

Rejections under 35 U.S.C §112

The Examiner rejected Claims 20 and 21, stating that the "originally filed specification fails to mention the pressure at the vehicle brake specifically being a non-zero positive pressure as recited in Claims 20 and 21."

Applicant respectfully traverses.

Paragraph [0028] of the Application recites, " When the brake apply signal generated by the driver or automatically is reduced, for example, by the driver reducing pressure on the brake pedal, the controller 36 determines that the wheel brake pressure P_b at the wheel brake 28 is greater than the demanded brake pressure P_d, calculates an estimated amount of brake fluid Q which has to be removed to the wheel brake 28 to lower the wheel brake pressure P_b at the wheel brake 28 to equal the now

lower demanded brake pressure P_d, and determines a desired rate of brake fluid flow R_Q out of the wheel brake 28 to bring the wheel brake pressure P_b to equal the demanded brake pressure P_d with a desired rate of change in wheel brake pressure P_b. The controller 36 leaves the apply valve 24 shut (by leaving the solenoid 26 deenergized) and opens the release valve 32 by decreasing the energizing signal to the solenoid 34 an amount that is calculated to achieve the desired rate of brake fluid flow R_Q given the difference between the wheel brake pressure P_b and the pressure in the reservoir 14. **The reservoir 14 is vented to atmosphere , and is sufficiently large to receive all the fluid from the wheel brake 28 without pressurizing, so the pressure in the reservoir 14 will remain zero (atmospheric pressure) at all times.** Therefore, the controller 36 does not actually perform a comparison of wheel brake pressure P_b and reservoir pressure, but rather bases the control signals to the components of the EHB system 10 based on the wheel brake pressure P_b ($P_b - 0 = P_b$) when relieving pressure to the reservoir 14. The controller 36 continuously adjusts the signal to the apply valve solenoid 34 as the wheel brake pressure P_b approaches the demanded brake pressure P_d, to account for changes in the wheel brake pressure P_b and so that the release valve 32 closes when the wheel brake pressure P_b equals the demanded brake pressure P_d." (**emphasis** added)

From the foregoing, when viewed in conjunction with the system diagram of Fig. 1 (and associated description of the operation of the system illustrated in Fig. 1), it is clear that with the reservoir being at zero pressure (atmospheric), if there is pressurized brake fluid in the brake 28, the pressure of the brake would be greater than the pressure in the reservoir, and thus would be greater than zero, and thus positive - i.e., the brake 28 would have a non-zero positive pressure, as recited in Claims 20 and 21.

Accordingly, the Examiner is respectfully requested to withdraw the rejections of Claims 20 and 21 under 35 U.S.C. §112.

Withdrawal from Consideration of Claim 22

The Examiner has found that Claim 22 was directed to an invention that is independent or distinct from the invention originally claimed, and withdrew Claim 22 from consideration. Accordingly, Applicants have cancelled non-elected Claim 22, but reserve the right to file a divisional application directed to the invention recited therein (relating to anticipatively turning on the pump before pressure in the accumulator decreases to the pump turn-on pressure setpoint when a large increase in braking demand is sensed by the electronic control unit.)

The Application should now be in proper form for allowance, and a Notice of Allowance is respectfully requested.

Respectfully submitted,

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